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February 7, 2016

Mr. Randy Smith
Gardner Spencer Smith Tench & Jarbeau, Architects
127 Peachtree Street, Suite 1020
Atlanta, Georgia 30303

Subject: **Roof Survey Report**
Union County Civic Center
165 Wellborn Street
Blairsville, Georgia 30512

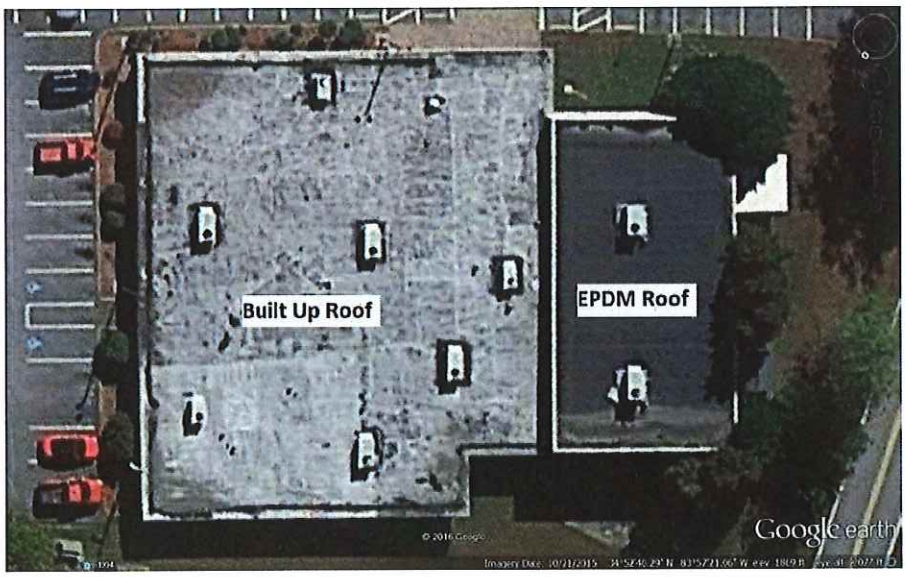
Survey Date: January 30, 2016

LOWER ROOF AREA: 13,000± square foot, 15± year-old, two-ply built up roof (BUR) membrane over a gravel surfaced BUR membrane and 2.25-inches of perlite insulation and a steel roof deck in poor condition with minimal useful service life remaining. The thickness of the roof system is approximately 3.75-inches.

ELEVATED ROOF AREA: 4,000± square foot, 10± year-old, fully adhered, 45-mil Carlisle, reinforced, ethylene propylene diene monomer (EPDM) membrane rigid insulation and a metal deck in overall good condition with no recommended repairs for the roof system.

RECOMMENDATIONS: On the lower roof, Remove all roofing materials to the deck and install a new minimum 60-mil TPO or EPDM membrane over minimum 4.00-inches of polyisocyanurate (Iso) insulation. Estimated Cost, $95,000. The estimated cost is contingent on slope built into the existing structure.

See additional information and requirements below in Paragraph F.



Unless otherwise noted, the information below pertains to the Built Up Roof

I. ROOF CONDITION

A. General Appearance

1. Debris – None observed.
2. Drainage – Fair to poor. The roof slopes to thru-edge scuppers at the three sides of the roof.
3. Physical Damage – None observed.
4. General Condition – Poor. The BUR has exceeded its useful life.
5. Equipment/Alterations – Fair. Two RTU's on the lower roof have ice on the condensing units and two RTU's on the EPDM roof are leaking from the base of the units.

B. Surface Condition

1. Bare Spots – None observed.
2. Surface Degradation – Minor.

C. Membrane Condition

1. Shattering– N/A.
2. Open Laps – None observed.
3. Punctures – Minor. Three splits/tears were observed in the membrane.
4. Delamination – None observed.
5. Previous Repairs – Extensive. Sealant and emulsion coating have been applied at several locations on the BUR membrane.
6. Stripping Plies – Fair.

D. Membrane Flashings

1. Punctures – None observed.
2. Deterioration – None observed.
3. Open Laps – None observed.
4. Attachment – Good. Membrane flashings extend up the parapet approximately three to six inches.
5. Open Corners – None observed.
6. Previous Repairs – None observed.

E. Metal Flashings

1. Parapet Cap / Gravel Stop – Fair. The edge metal along the perimeter of both roofs is rusted.
2. Curb Counter-flashing – Fair.
3. Drains – None.
4. Scuppers – Fair. Thru edge scuppers connect to downspouts.
5. Gutters – N/A.
6. Downspouts – Fair. Downspouts discharge at grade.
7. Skylights – N/A.
8. Roof Hatches – None. The roofs are accessed by external ladder.

F. Recommendations

1. Remove the existing BUR system to the metal deck.
2. Remove abandoned penetrations and cover the openings with 18 gauge steel plate for smaller openings and install new decking at larger openings.
3. Provide new perimeter wood nailers/blocking.
4. Install new TPO membrane system over minimum 4.0-inches Iso insulation. Install the insulation in two layers. Maximum thickness for one layer shall be 3.0–inches.
5. Replace thru edge scuppers with gutters. Match location of existing downspouts.
6. Bidding contractors should provide unit pricing for lightly rusted decking repair and severely rusted decking replacement.

II. MOISTURE SURVEY

A Moisture survey was conducted using a Flir E60 infrared camera. The survey was conducted after the sun was no longer shining on the roof surface. The ambient temperature during the survey was 61 degrees F. Minor traces of moisture was detected in the BUR system by the IR camera. Photos 37-42 show conditions on the lower roof.

III. COMMENTS

Mr. Larry Garrett provided historical information and identified leak locations within the building. All leaks were located under the lower, built up roof.

The two plies of membrane were installed directly over the original gravel surfaced BUR which would shorten the expected useful life for that system. Ridges, blisters and ruptured blisters were observed in the membrane.

There is a noticeable ridge on the roof extending from the high parapet wall to approximately ¾ of the roof. The roof slopes toward the perimeter. Based on the location of thru edge scuppers, there may be a hip design in the structure. See the aerial image below.

Included with this report are representative photographs and a satellite image of the building.

Please contact us should you have questions or comments concerning this report.

Respectfully,

Reeves Consulting, Inc.

Jerry Reeves
President

Photo 1: Overview of the building exterior.

Photo 2: Overview of the building exterior.

Photo 3: Overview of the building exterior.

Photo 4: Overview of the building exterior.

Photo 5: Overview of the building exterior.

Photo 6: Overview of the building exterior.

Photo 7: Overview of the lower roof.

Photo 8: An additional overview of the lower roof.

Photo 9: Overview of the lower roof perimeter and ponded water.

Photo 10: Overview of the building perimeter. Note large repair made with mastic.

Photo 11: Overview of the lower roof perimeter. Note ponded water.

Photo 12: Overview of the lower roof at the junction of the higher roof. Note wood siding.

Photo 13: View of the termination of the base flashings at the junction to the high wall.

Photo 14: An additional view of the detail at the junction of the flashings termination.

Photo 15: View of repairs at the perimeter of an RTU.

Photo 16: View of mastic repairs.

Photo 17: View of mastic repairs.

Photo 18: View of a split in the membrane.

Photo 19: View of mastic repairs.

Photo 20: View of through edge scuppers.

Photo 21: View of a through edge scupper.

Photo 22: View of mechanical equipment.

Photo 23: View of penetrations.

Photo 24: View of the wood siding. Note gaps at board joints.

Photo 25: View of the suspended ceiling inside the building. This condition is typical.

Photo 26: View of the bottom side of the deck.

Photo 27: View of the bottom side of the deck.

Photo 28: View of the bottom side of the deck.

Photo 29: View of the the bottom side of the deck.

Photo 30: View of the bottom side of the deck.

Photo 31: View of the upper, EPDM membrane roof.

Photo 32: View of the EPDM roof.

Photo 33: View of the EPDM roof.

Photo 34: View of the mechanical equipment on the EPDM roof.

Photo 35: View of leaking RTU's.

Photo 36: View of a scupper at the perimeter of the EPDM roof.

Photo 37: Digital view of the lower built up roof.

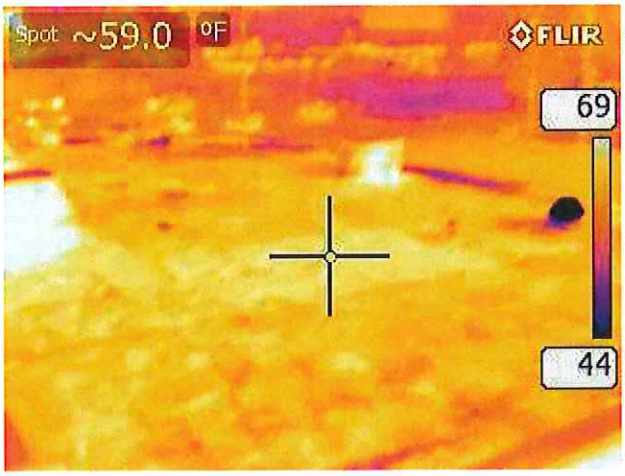


Photo 38: IR view of the previous photo.

Photo 39: Digital view of the lower built up roof.

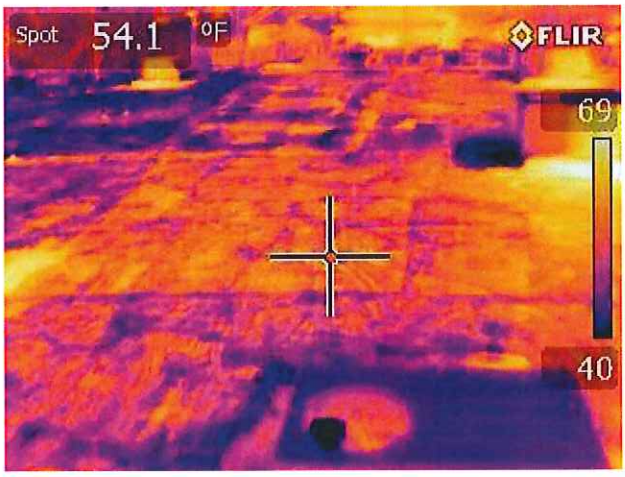


Photo 40: IR view of the previous photo.

Photo 41: Digital view of the built up roof.

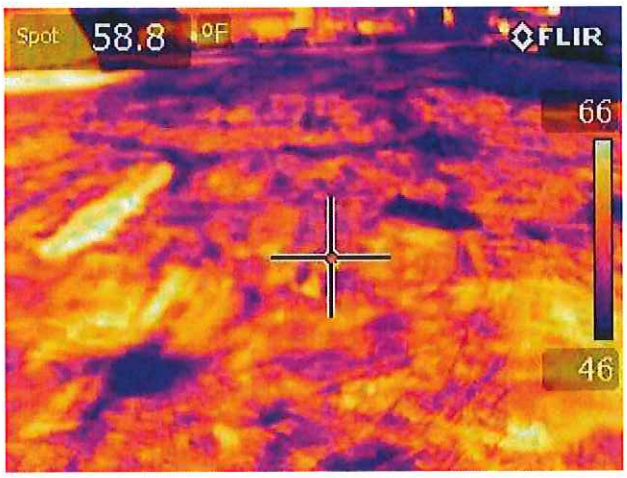


Photo 42: IR view of the previous photo.

Arial Roof Image 10/21/15
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165 Wellborn Street
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